

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A method of sending a plurality of first signals and a plurality of second signals to a plurality of user equipments, the method comprising:

providing a transmitter with a plurality of power amplifiers and a plurality of antennas, each of the plurality of power amplifiers being a multi-carrier power amplifier supporting amplification of a first carrier frequency and also a second carrier frequency;

providing a dedicated channel for each one of the plurality of user equipments, thereby providing a plurality of dedicated channels;

for each dedicated channel, assigning only one a-carrier frequency of a set of carrier frequencies, the set of carrier frequencies comprising at least a first carrier frequency and a second carrier frequencies to each one of the dedicated channels; frequency, wherein some of the plurality of dedicated channels are assigned to the first carrier frequency and others of the plurality of dedicated channels are assigned to the second carrier frequency;

providing a code-multiplexed shared channel for the plurality of user equipments[.];

sending one of the first signals to a given user equipment one of the plurality of user equipments, wherein the first signals are sent by said transmitter on the dedicated channel provided for the given of the user equipment on only the assigned one of the plurality of carrier frequency-frequencies, using one of the plurality of power amplifiers and one of the plurality of

antennas, wherein the one of the power amplifiers and the one of plurality of antennas used are determined according to by applying a transmit diversity scheme[.]; and

sending one of the second signals to a given one of the plurality of user equipments,
wherein the second signals are sent by said transmitter, on the code-multiplexed shared channel
on a carrier frequency assigned to that the given user equipment, using only one of the plurality
of power amplifiers and only one of the plurality of antennas, wherein the one of the power
amplifiers and the one of the antennas used are determined according to by applying a multi-user
diversity scheme.

2. (previously presented): The method of claim 1, wherein the dedicated channels is a DSCH type channels and the code-multiplexed shared channel is a HS-DSCH type channel of a HSDPA type transmission system.

3. (canceled).

4. (previously presented): The method of claim 1, wherein the set of carrier frequencies having a number of n carrier frequencies.

5. (currently amended): A computer program product having a computer readable medium storing a computer having program adapted to enable a transmitter to perform operations, the transmitter having one or more of a transmit diversity module and a scheduler, the operations comprising:

~~means for~~ sending a plurality of first signals and a plurality of second signals to a plurality of user equipments;
~~, the program means performing the steps of~~ providing a dedicated channel for each one of the plurality of user equipments,
assigning a carrier frequency of a set of at least first and second carrier frequencies to each one of the dedicated channels,
providing a code-multiplexed shared channel for the plurality of user equipments,
sending one of the first signals to one of the plurality of user equipments on the dedicated channel of that user equipment on the assigned carrier frequency by applying a transmit diversity scheme,
sending one of the second signals to one of the plurality of user equipments on the code-multiplexed shared channel on only the carrier frequency being assigned to that user equipment by applying a multi-user diversity scheme.

6. (currently amended): A sender for sending a plurality of first signals and a plurality of second signals to a plurality of user equipments, the sender comprising:
a first component which provides a dedicated channel for each one of the plurality of user equipments,
a second component which assigns a carrier frequency of a set of at least first and second carrier frequencies to each one of the dedicated channels,
wherein the each one of the plurality of user equipments are split into a first group of user equipments and a second group of user equipments and

wherein the first group of user equipments are assigned to the first carrier frequencies and the second group of user equipments are assigned to the second frequencies,

a third component which provides a code-multiplexed shared channel for the plurality of user equipments,

a fourth component which sends one of the first signals to one of the plurality of user equipments on the dedicated channel of that user equipment on the assigned carrier frequency by applying a transmit diversity scheme,

a fifth component which sends one of the second signals to one of the plurality of user equipments on the code-multiplexed shared channel on only the carrier frequency being assigned to that user equipment by applying a multi-user diversity scheme.

7. (previously presented): The sender of claim 6 further comprising scheduler which provides the multi-user diversity for the code-multiplexed shared channel for sending of one of the second signals only when a constructive channel fade is detected.

8. (previously presented): The sender of claim 6, wherein the fourth component which sends the one of the first signals and the fifth component which sends the one of the second signals are provided by first and second multi-carrier amplifier components being coupled to first and second antenna components, the first and second multi-carrier amplifiers having at least the first and the second frequencies.

9. (previously presented): The sender of claim 6, wherein the set of carrier frequencies having a number of n carrier frequencies.

10. (currently amended): A mobile cellular telecommunication system for sending a plurality of first signals and a plurality of second signals to a plurality of user equipments within a cell, the telecommunication system comprising:

a first component which provides a dedicated channel for each one of the plurality of user equipments,

a second component which assigns a carrier frequency of a set of at least first and second carrier frequencies to each one of the dedicated channels,

wherein the each one of the plurality of user equipments are split into a first group of user equipments and a second group of user equipments and

wherein the first group of user equipments are assigned to the first carrier frequencies and the second group of user equipments are assigned to the second frequencies,

a third component which provides a code-multiplexed shared channel for the plurality of user equipments,

a fourth component which sends one of the first signals to one of the plurality of user equipments on the dedicated channel of that user equipment on the assigned carrier frequency by applying a transmit diversity scheme,

a fifth component which sends one of the second signals to one of the plurality of user equipments on the code-multiplexed shared channel on only the carrier frequency ~~being~~ assigned to that user equipment by applying a multi-user diversity scheme.

11. (previously presented): The method of claim 1, wherein the each one of the plurality of user equipments is assigned to the first carrier frequencies or the second carrier frequencies.

12-13 (canceled).

14. (previously presented): The method according to claim 1, wherein the each one of the plurality of user equipments is assigned to a first transmission carrier frequency or a second transmission frequency.

15. (previously presented): The method according to claim 14, wherein the plurality of user equipments are assigned to the first transmission carrier frequency or the second transmission frequency in an alternating way, wherein when a user equipment among the plurality of user equipments becomes active the first carrier frequency is assigned to the user equipment, and when a next user equipment among the plurality of user equipments becomes active the second carrier frequency is assigned to the next user equipment.

16. (previously presented): The method according to claim 14, wherein the plurality of user equipments are assigned to the first transmission carrier frequency or the second transmission frequency in order to balance load of the power amplifiers.

17. (previously presented): The method of claim 1, wherein the plurality of first signals correspond to real-time signals and the plurality of second signals correspond to non-real time signals.

18. (previously presented): The method of claim 14 , wherein the assignment of the plurality of user equipments to the first and second transmission frequencies is dynamic.

19. (currently amended): The method of claim ~~12~~ 1, wherein one of the second signals sent to the first group of user equipments are amplified by a first multi-carrier power amplifier and one of the second signals sent to the first group of user equipments are amplified by a second multi-carrier power amplifier.

20. (previously presented): The method of claim 1, further comprising:
scheduling of the second signals to be sent over the code-multiplexed shared channel in order to provide multi-user diversity by scheduling only the plurality of second signals to the user equipments in constructive fades,

whereby first and second power amplifiers are used for sending of the plurality of first signals and the plurality of second signals, and scheduling of the second plurality of signals is performed such that usage of the first and second power amplifiers is statistically balanced.